

WHAT IS CLAIMED IS:

1. A visual execution monitoring tool for monitoring execution of a message processing program, comprising:

one or more components for generating program  
5 execution progress reports upon reaching predefined stages  
of program execution, the execution progress reports  
including a representation of the current contents of a  
message being processed by the message processing program,  
and for sending the execution progress reports to an  
10 execution monitoring controller;

an execution monitoring controller which is responsive  
to receipt of said execution progress reports for  
generating, during execution of said message processing  
program, a visual representation of the message contents.

15 2. A visual execution monitoring tool according to claim  
1, including a message generator which is responsive to  
user input to create a message and to invoke the message  
processing program to process the message.

20 3. A visual execution monitoring tool according to claim  
1, including means for setting breakpoints within the

message processing program and means for modifying the message contents when execution is stopped at a breakpoint.

4. A visual execution monitoring tool according to claim 1, wherein the execution progress reports include an indication of the current execution status and the execution monitoring controller is adapted to generate a visual representation of the current execution status.

5. A visual execution monitoring tool according to claim 1, wherein the execution progress reports include information relating to the position within the message processing program structure corresponding to the current stage of program execution and the execution monitoring controller is adapted to generate a visual representation of this position within the message processing program structure.

6. A visual execution monitoring tool according to claim 1, wherein the execution monitoring controller includes means for analyzing the message processing program to identify a set of locations within the message processing program corresponding to a predefined set of execution

progress points and to insert the components for generating program execution progress reports at said locations.

7. A method for monitoring execution progress of a message processing program, including the steps of:

5 identifying a set of locations within the message processing program corresponding to a predefined set of execution progress points, and inserting at each of said locations a component for generating a program execution progress report when the predefined execution progress  
10 point is reached during execution of the message processing program;

responsive to input to the message processing program of at least one message, initiating execution of the message processing program to process said at least one  
15 message and to generate program execution progress reports including a representation of the current message contents, and to send the reports to an execution monitoring controller;

20 responsive to receipt of said progress reports by said execution monitoring controller, generating a visual representation of the current message contents for display to a user.

8. A computer program product comprising program code recorded on a computer-readable recording medium, for monitoring execution of a message processing program, comprising:

5 one or more components for generating program execution progress reports upon reaching predefined stages of program execution, the execution progress reports including a representation of the current contents of a message being processed by the message processing program, and for sending the execution progress reports to an execution monitoring controller;

10 an execution monitoring controller which is responsive to receipt of said execution progress reports for generating, during execution of said message processing program, a visual representation of the message contents.

15 9. A data processing system including a visual execution monitoring tool for monitoring execution of a message processing program, the execution monitoring tool comprising:

20 one or more components for generating program execution progress reports upon reaching predefined stages of program execution, the execution progress reports including a representation of the current contents of a

message being processed by the message processing program,  
and for sending the execution progress reports to an  
execution monitoring controller;

an execution monitoring controller which is responsive  
5 to receipt of said execution progress reports for  
generating, during execution of said message processing  
program, a visual representation of the message contents.

10. A visual execution monitoring tool for monitoring  
execution of a message processing program, the execution  
10 monitoring tool comprising:

means for identifying locations within the message  
processing program corresponding to a predefined set of  
execution progress points, and for inserting at each of  
said locations a component for generating a program  
15 execution progress report when the predefined execution  
progress point is reached during execution of the message  
processing program;

means responsive to input to the message processing  
program of at least one message, for initiating execution  
20 of the message processing program to process said at least  
one message and to generate program execution progress  
reports including a representation of the current message

contents, and to send the reports to an execution monitoring controller;

means responsive to receipt of said progress reports by said execution monitoring controller, for generating a visual representation of the current message contents for display to a user.

11. A computer program product comprising program code recorded on a computer-readable recording medium, for monitoring execution of a message processing program, comprising:

means for identifying locations within the message processing program corresponding to a predefined set of execution progress points, and for inserting at each of said locations a component for generating a program execution progress report when the predefined execution progress point is reached during execution of the message processing program;

means responsive to input to the message processing program of at least one message, for initiating execution of the message processing program to process said at least one message and to generate program execution progress reports including a representation of the current message

contents, and to send the reports to an execution monitoring controller;

means responsive to receipt of said progress reports by said execution monitoring controller, for generating a visual representation of the current message contents for display to a user.

12. A data processing system including a visual execution monitoring tool for monitoring execution of a message processing program, the execution monitoring tool comprising:

means for identifying locations within the message processing program corresponding to a predefined set of execution progress points, and for inserting at each of said locations a component for generating a program execution progress report when the predefined execution progress point is reached during execution of the message processing program;

means responsive to input to the message processing program of at least one message, for initiating execution of the message processing program to process said at least one message and to generate program execution progress reports including a representation of the current message

contents, and to send the reports to an execution monitoring controller;

means responsive to receipt of said progress reports by said execution monitoring controller, for generating a visual representation of the current message contents for display to a user.

13. A visual execution monitoring tool for monitoring execution of a computer program, comprising:

means for identifying locations within a computer program corresponding to a predefined set of execution progress points, and for inserting at each of said locations a component for generating program execution progress reports when the predefined execution progress points are reached during execution of said program;

means responsive to said components generating said execution progress reports for sending the progress reports to an execution monitoring controller;

an execution monitoring controller for receiving said execution progress reports and for generating, during execution of said computer program, a visual representation of the received execution progress report data.



14. A visual execution monitoring tool according to claim 13, including means for setting breakpoints during program execution, wherein the identified locations corresponding to a predefined set of execution progress points comprises all possible breakpoint locations within the computer program.

15. A visual execution monitoring tool according to claim 13, wherein the execution progress reports include execution status information and information relating to the position within the program structure corresponding to the current stage of program execution, and wherein the execution monitoring controller is adapted to generate a visual representation of the position within the program structure and a visual representation of the execution status information.

16. A visual execution monitoring tool according to claim 13, in which said execution monitoring controller maintains a representation of the structure of the computer program as a sequence of interconnected nodes in which individual nodes represent processing components of the program, and wherein the progress reports include an identifier of a

node associated with the currently executing processing component.

17. A visual execution monitoring tool according to claim 16, wherein the information relating to the position within the program structure includes a node identifier and the execution monitoring controller saves this information to an execution stack so as to record information tracking a sequence of positions within the program structure corresponding to an executed processing sequence.

18. A visual execution monitoring tool according to claim 16, in which the components for generating progress reports are also represented as nodes within the program structure.